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Koda & Androlia 2029 Century Park East Suite 1430 Los Angeles, CA 90067-3024			SHAPIRO, JEFFERY A		
			ART UNIT	PAPER NUMBER	
			3653 DATE MAILED: 11/14/2003		

Please find below and/or attached an Office communication concerning this application or proceeding.

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	Application No.	Applicant(s)				
···	09/528,282	FURUYA, YONEZO				
Office Action Summary	Examin r	Art Unit				
•	Jeffrey A. Shapiro	3653				
The MAILING DATE of this communication app Period for Reply	ars on the cover sh t with the c	correspondence addr ss				
A SHORTENED STATUTORY PERIOD FOR REPLY THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.13 after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply - If NO period for reply is specified above, the maximum statutory period w - Failure to reply within the set or extended period for reply will, by statute, - Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b). Status	i6(a). In no event, however, may a reply be tir within the statutory minimum of thirty (30) day ill apply and will expire SIX (6) MONTHS from cause the application to become ABANDONE	nely filed s will be considered timely. I the mailing date of this communication. D (35 U.S.C. § 133).				
1) Responsive to communication(s) filed on <u>04 Se</u>	eptember 2003.					
2a)⊠ This action is FINAL . 2b)□ This a	This action is FINAL . 2b) ☐ This action is non-final.					
	Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.					
Disposition of Claims						
4) ☐ Claim(s) 1-27 is/are pending in the application. 4a) Of the above claim(s) is/are withdraw 5) ☐ Claim(s) is/are allowed. 6) ☐ Claim(s) 1-27 is/are rejected. 7) ☐ Claim(s) is/are objected to. 8) ☐ Claim(s) are subject to restriction and/or						
Application Papers						
9) The specification is objected to by the Examine	r.					
10)☐ The drawing(s) filed on is/are: a)☐ acce						
Applicant may not request that any objection to the						
Replacement drawing sheet(s) including the correcti						
11) The oath or declaration is objected to by the Ex	aminer. Note the attached Office	e Action or form PTO-152.				
Priority under 35 U.S.C. §§ 119 and 120						
 12) Acknowledgment is made of a claim for foreign a) All b) Some * c) None of: Certified copies of the priority documents Certified copies of the priority documents Copies of the certified copies of the priority application from the International Bureau. * See the attached detailed Office action for a list of the since a specific reference was included in the first since a specific reference was included in the first standard production. 13) Acknowledgment is made of a claim for domestic since a specific reference was included in the first sentence of the reference was included in the first sentence of the since a specific reference was included in the first sentence of the reference was included in the first sentence of the since a specific reference was included in the first sentence of the reference was included in the first sentence of the since a specific reference was included in the first sentence of the since a specific reference was included in the first sentence of the since a specific reference was included in the first sentence of the since a specific reference was included in the first sentence of the since a specific reference was included in the first sentence of the since a specific reference was included in the first sentence of the since a specific reference was included in the first sentence of the since a specific reference was included in the since a specific reference was	s have been received. s have been received in Applicating documents have been received (PCT Rule 17.2(a)). of the certified copies not received priority under 35 U.S.C. § 119(at sentence of the specification of the visional application has been receptority under 35 U.S.C. §§ 120	ion No ed in this National Stage ed. (e) (to a provisional application) or in an Application Data Sheet. ceived. O and/or 121 since a specific				
Attachment(s)						
1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)	5) 🔲 Notice of Informal I	/ (PTO-413) Paper No(s) Patent Application (PTO-152)				

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1 The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Martin et al, US 6,196,371 B1 (referred to as "Coinstar" in the prior action). Martin et al discloses the coin inspection apparatus as follows.

As described in Claims 1,6, 11, 16 and 27;

- 1. an exciting coil (see figure 2a, 2b,2c and 2d, for example) arranged in the vicinity of one side of a coin passage;
- 2. a receiving coil (see figures 5, 6 and 11a) arranged in the vicinity of said one side of said coin passage so as to be electromagnetically coupled with said exciting coil;
- 3. oscillation means (1152a and b) for exciting and oscillating said exciting coil at a predetermined frequency to produce an electromagnetic field;
- 4. first detecting means (see figure 55c) for detecting at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil;
- 5. second detecting means (see figure 55c, sensors 4546a, b or c) for detecting an electromotive force signal generated in said receiving coil;

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6. discriminating means (see figures 36, 37 and 38) for discriminating authenticity of the thrown coin based on detection from said first and second detecting means;

6b. discriminating authenticity based on a combination of an electromotive force signal (4544a, b or c) detected by said receiving coil (45446a-c) and amplitude, frequency or phase of an oscillation voltage of said exciting coil (see figure 55c, for example);

As described in Claims 2, 7, 12 and 19;

7. said predetermined frequency is set in accordance with material of the coin to be discriminated (see figure 35b);

As described in Claims 3, 8, 13 and 20;

8. said discriminating means determines material of the thrown coins based on the amplitude of the oscillation voltage of said exciting coil (see figure 35b);

As described in Claims 4, 9, 14 and 25;

9. said discriminating means samples said electromotive force signal in *a time* period, and performs a statistical process based on the sampled values to determine a feature of the thrown coin (see figure 37);

As described in Claims 10, 15 and 26;

10. said statistical process is performed by obtaining a coefficient of correlation of said sampled values with respect to a reference coin, and

discriminating the thrown coin based on magnitude of said correlation coefficient (see figure 55d);

As described in Claims 5, 6, 13, 16 and 27;

- 11. two receiving coils having substantially identical characteristics and arranged in the vicinity of said one side of said coin passage so that said receiving coils are electromagnetically coupled with said exciting coil (see figures 56a-56h);
- 12. discriminating authenticity of the coin based upon at least one of amplitude, frequency and phase of oscillation voltage of said exciting coil, and an electromotive force signal *influenced by a reactive magnetic field* caused by eddy currents induced on a surface of the coin when the coin passes through said electromagnetic field and detected by said two receiving coils (note that Martin et al discloses determining surface irregularities and properties near the surface of the coin as well as properties for different regions of a coin—see col. 2, lines 15-23);

As described in Claims 17 and 27;

12. said first detecting means includes a first detector circuit for outputting a direct voltage signal corresponding to the oscillation voltage of said exciting coil (see figures 31a-31i);

As described in Claims 18 and 27;

13. said second detecting means comprises a bridge circuit including said two receiving coils, a different amplifier circuit for amplifying an

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alternating voltage signal outputted from said bridge circuit and outputting the amplified signal, and a second detector circuit for detecting and rectifying the alternating voltage signal from said differential amplifier circuit and converting the same into a direct voltage signal corresponding to the output of said bridge circuit (see figure 12);

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As described in Claims 21-23;

14. said exciting coil is arranged at a predetermined distance from said receiving coils so that a line connecting the center of magnetic poles of said exciting coil is substantially **parallel or perpendicular** with an extending direction of said coin passage, and two receiving coils are arranged above a coin rail provided with said coin passage so that a line connecting centers of said two receiving coils is substantially **parallel or perpendicular** with an extending direction of said coin passage (see figures 2c and 3);

As described in Claims 6 and 24;

15. said coin passage (2121a) is formed so that a coin passing therethrough is inclined to said one side of said coin passage where said exciting coil and said receiving coils are arranged (see figure 21);

Claim Rejections - 35 USC § 103

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

- 4 Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al in view of Rawicz-Szczerbo et al.
- 5 Claims 1-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Martin et al. Martin et al discloses the coin inspection apparatus as follows.

As described in Claims 1,6, 11, 16 and 27;

- 1. an exciting coil (see figure 2a, 2b,2c and 2d, for example) arranged in the vicinity of one side of a coin passage;
- 2. a receiving coil (see figures 5, 6 and 11a) arranged in the vicinity of said one side of said coin passage so as to be electromagnetically coupled with said exciting coil;
- 3. oscillation means (1152a and b) for exciting and oscillating said exciting coil at a predetermined frequency to produce an electromagnetic field;
- 4. first detecting means (see figure 55c) for detecting at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil;
- 5. second detecting means (see figure 55c, sensors 4546a, b or c) for detecting an electromotive force signal generated in said receiving coil;
- 6. discriminating means (see figures 36, 37 and 38) for discriminating authenticity of the thrown coin based on detection from said first and second detecting means;

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6b. discriminating authenticity based on a combination of an electromotive force signal (4544a, b or c) detected by said receiving coil (45446a-c) and amplitude, frequency or phase of an oscillation voltage of said exciting coil (see figure 55c, for example);

As described in Claims 2, 7, 12 and 19;

7. said predetermined frequency is set in accordance with material of the coin to be discriminated (see figure 35b);

As described in Claims 3, 8, 13 and 20;

8. said discriminating means determines material of the thrown coins based on the amplitude of the oscillation voltage of said exciting coil (see figure 35b);

As described in Claims 4, 9, 14 and 25;

9. said discriminating means samples said electromotive force signal in *a time* period, and performs a statistical process based on the sampled values to determine a feature of the thrown coin (see figure 37);

As described in Claims 10, 15 and 26;

10. said statistical process is performed by obtaining a coefficient of correlation of said sampled values with respect to a reference coin, and discriminating the thrown coin based on magnitude of said correlation coefficient (see figure 55d);

As described in Claims 5, 6, 13, 16 and 27;

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11. two receiving coils having substantially identical characteristics and arranged in the vicinity of said one side of said coin passage so that said receiving coils are electromagnetically coupled with said exciting coil (see figures 56a-56h);

12. discriminating authenticity of the coin based upon at least one of amplitude, frequency and phase of oscillation voltage of said exciting coil, and an electromotive force signal *influenced by a reactive magnetic field* caused by eddy currents induced on a surface of the coin when the coin passes through said electromagnetic field and detected by said two receiving coils;

As described in Claims 17 and 27;

12. said first detecting means includes a first detector circuit for outputting a direct voltage signal corresponding to the oscillation voltage of said exciting coil (see figures 31a-31i);

As described in Claims 18 and 27;

13. said second detecting means comprises a bridge circuit including said two receiving coils, a different amplifier circuit for amplifying an alternating voltage signal outputted from said bridge circuit and outputting the amplified signal, and a second detector circuit for detecting and rectifying the alternating voltage signal from said differential amplifier circuit and converting the same into a direct voltage signal corresponding to the output of said bridge circuit (see figure 12);

As described in Claims 21-23;

14. said exciting coil is arranged at a predetermined distance from said receiving coils so that a line connecting the center of magnetic poles of said exciting coil is substantially **parallel or perpendicular** with an extending direction of said coin passage, and two receiving coils are arranged above a coin rail provided with said coin passage so that a line connecting centers of said two receiving coils is substantially **parallel or perpendicular** with an extending direction of said coin passage (see figures 2c and 3);

As described in Claims 6 and 24;

15. said coin passage (2121a) is formed so that a coin passing therethrough is inclined to said one side of said coin passage where said exciting coil and said receiving coils are arranged (see figure 21);

Martin et al does not expressly disclose details of using eddy currents to detect surface patterns of coins.

Rawicz-Szczerbo et al discloses using eddy currents to detect surface patterns of coins.

Both Martin et al and Rawicz-Szczerbo et al are analogous art as they both disclose coin discrimination using induction coils.

At the time of the invention, it would have been obvious to use the induction coils of the device of Martin et al to detect surface patterns of coins by inducing eddy currents by one coil and detecting the resulting frequencies by another coil.

The suggestion/motivation would have been to determine a surface pattern embossed on the coin. See Rawicz-Szczerbo et al, col. 4, lines 2-23. See also Fougere, col. 3, lines 35-41, further indicating such a scheme is well-known in the art.

Therefore, it would have been obvious to combine Martin et al and Rawicz-Szczerbo et al to obtain the invention as specified in Claims 1-27.

Response to Arguments

Applicant's arguments filed 9/4/03 have been fully considered but they are not persuasive. Applicant asserts that the Martin et al reference fails to disclose "detecting an electromotive force affected by a reactive magnetic field caused by eddy currents induced on a surface of the coin using receiving coils so as to detect the surface pattern of the coins.

The device of Martin et al discloses a first core (1142a) and coil (1144a) and a second core (1142b) and coil (1144b). These cores and coils send out a magnetic field which is altered by the coin as it passes by. The magnetic field, or eddy currents detected from the coin are resultant from the fields produced by the induction coils. The resulting change in eddy currents is then detected by the processor (294) which compares this frequency with a reference frequency to obtain the difference with results recorded as in 16a or 16b, for example. In effect, the induction coils produce an electromotive force which becomes a magnetic field or eddy currents. The magnetic

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field is altered when the coin passes by the coils. This new, altered field is then detected by the coils and the change recorded and compared with reference data. Therefore, the original electromotive force is altered by the reactive magnetic field caused by the eddy currents created by the coin. These eddy currents are indicative of surface properties and therefore surface patterns of particular coins. See Martin et al (US 6,196,371 B1), col. 2, lines 7-22. Note also Martin et al, col. 5, lines 14-16 which mentions eddy currents. Note also Martin et al (US 5,988,348), col. 50, lines 21-67 and col. 51-36. Again, as cited above, Rawicz-Szczerbo et al discloses using eddy currents to obtain surface patterns using induction coils. See col. 4, lines 4-23.

Note also that it appears that nowhere in the claims is there a recitation that both the excitation and receiving coils are separate coils. Even if they are not separate coils in the system of Martin et al or Rawicz-Szczerbo et al, it can be argued that they are functional equivalents.

Therefore, as the prior art appears to read on Claims 1-27, as currently written, the rejections based upon the prior art are considered to be valid.

Conclusion

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey A. Shapiro whose telephone number is (703)308-3423. The examiner can normally be reached on Monday-Friday, 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald P. Walsh can be reached on (703)306-4173. The fax phone number for the organization where this application or proceeding is assigned is (703)306-4195.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-

1113.

Jeffrey A. Shapiro

Examiner

Art Unit 3653

November 10, 2003

DONALD P. WALSH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600